

Specifications for Brookings County Dump Body, Hoist, Hydraulics, Plow Hitches, Plow, Wing and Pusher Axle

Dump Body:

1. Dump body and hoist shall be made by same manufacturer to insure proper fit
2. Dump body and hoist shall be made in United States
3. Dump body should be 16' (192") to fit a 148" CT chassis and allow for approximately 14" overhang with center of hinge located even with the back of rear tandem axle tire
4. Body width shall be minimum 84" inside and maximum 96" outside
5. Front of body shall be a straight vertical style with a front height of minimum 62" with a minimum of (1) one front inside brace
6. Front shall have a minimum of ½ 10 gauge cab shield
7. Sides of body shall be a ¾ double wall style with side height a minimum of 38" with a horizontal side brace
8. The rear of body shall be of a sloped style with a minimum of 46"
9. The tailgate shall have a fully boxed perimeter with two (2) horizontal braces creating a 3 panel design
10. Tailgate upper hinge shall be a minimum 1.5" thick with a double link hinge system
11. Body front, sides, and rear shall be constructed of a minimum of 8 Gauge 100,000 psi yield and 110,000 psi tensile strength steel
12. Body floor shall be constructed of a minimum of 3/16 AR400 steel (145,000 psi yield and 180,000 psi tensile)
13. Body outside bracing material shall be minimum 10 gauge 50,000 psi yield and 65,000 psi tensile
14. Long members of the body shall be a Western Tubular design (no cross members) with long members constructed of 1/4" inner and 7 gauge outer material
15. Rear pillar and rear apron shall be constructed of stainless steel
16. Tailgate shall be double acting and have banjo chain slot brackets for adjusting tailgate chain length
17. Tailgate shall have an electric over air tailgate release
18. The body shall have a Cougar Dump body vibrator – installed
19. Rear corner post shall have two (2) rear facing oval light cutouts
20. Body to be supplied with LED stop/turn/tail lights and marker lights
21. Body is to be factory primed painted
22. Body painted to match cab of truck
23. Body to have one (1) pair of detachable rear mudflaps – installed
24. Body shall have board pockets at front and rear in order to add side boards

Dump Body Hoist:

1. Hoist shall be sized to properly fit 16' dump body and provide a minimum of 50 degree dump angle
2. Hoist shall have a NTEA class 120 rating
3. Hoist shall be single acting
4. Hoist shall be trunnion mounted with an inverted cylinder
5. Hoist cylinder shall have 3 stages (6", 5", 4") and a minimum stroke of 153"
6. Hoist lifting capacity shall be minimum of 41.8 tons
7. Hoist shall have an internal device to automatically remove air from the cylinder and hydraulic lines whenever the cylinder is extended and retracted

8. Hoist shall be equipped with a lower mount consisting of a retaining box with an inner floating cylinder mount that accommodates some truck frame movement without moving the telescopic cylinder
9. Rear hinge shall have composite bushings with removable pins
10. Dump body and hoist to have a 5 year warranty

Hydraulics:

1. Hydraulic pump shall be U.S. Manufactured axial piston pressure and flow compensated load-sensing type
2. Pump shall be cast iron construction and rated at 6.00 cubic inches and deliver 24.7 gpm @ 1000 engine rpm
3. Pump shall have 2" suction line and ¾" case drain line plumbed back to reservoir
4. Pump shall be rated for 3,000 psi maximum and 2,500 psi continuous
5. Pump shall have a 1-1/4" Keyed drive shaft and SAE type C mounting flange
6. Pump shall be Force America FASD45 or approved equal
7. 1" high-pressure steel ball valve at outlet of pump
8. Pump shall be front mount pump mounted in the extended frame rails of truck
9. Pump mounted so as not to create more than a three degree angle on the driveline
10. Pump shall be driven directly off the engine crankshaft via splined driveline which includes grease fittings on both u-joint (Driveline shall be Spicer model 1310 series or equal)
11. Hydraulic reservoir shall be minimum 40 gallon capacity, constructed of 10 gauge pickled steel and powder coated black
12. Reservoir shall be cradle mounted and sit above the frame rails of truck and between the cab and dump body
13. Reservoir shall be equipped with basket type filler breather cap, ¾" magnetic drain plug, 2" NPT suction with 100-mesh screen type filter with 3 psi bypass, separate return port for case drain line, 5" sight temperature gauge externally mounted, 2" full flow brass ball valve, and electric level sending unit
14. Hydraulic oil filter shall be mounted in the reservoir with a rating of no less than 80 gpm and be equipped with a filter condition indicator gauge
15. Filter shall also include a tank diffuser
16. The hydraulic valve shall be of modular manifold design
17. Each hydraulic function requires an individual manifold stacked together to form the manifold base
18. The manifold base shall consist of an inlet section, inlet porting, outlet porting, and load sense porting
19. There shall be a main system relief in the inlet section to protect the system from high pressure
20. The dump body manifold shall be stacked next to the inlet section and capable of 40 gpm
21. The hydraulic control valves shall be pulse-width modulated, proportionally controlled
22. Each hydraulic valve segment shall be individually mounted to the manifold base and be serviceable without removing hydraulic hoses or other valve segments
23. Each hydraulic valve segment shall have individual pressure compensation
24. All segments shall have heavy-duty continuous duty coils and connections shall be with Din connectors
25. All coils shall operate at 12 VDC and require a maximum of 1400 mille-amps
26. Each segment shall be equipped with a manual override except for auger and spinner sections
27. Dump body segment shall be rated at 40 gpm with all other segments rated to 20 gpm
28. Valve segment shall be Force Add-A-Fold model or prior approved equal

Pup shall be operated from hoist control

Plow lift – single acting lift cylinder

Wing Toe – double acting with 500 psi relief valve

Wing Heel – double acting with 1500 psi A port 500 psi B port relief

Conveyor

Spinner

29. Valve assembly shall be mounted in weather-tight enclosure with valve mounted with all ports coming out bottom
30. The wing heel cylinder shall be equipped with an anti-drift wing lock to prevent the wing from settling
31. All hydraulic lines and plumbing shall be of sufficient capacity so not to create heat or turbulence within the hydraulic system.
32. Hydraulic lines shall be routed to minimize interference with equipment and chassis components requiring service
33. Support brackets grommets and tie wraps shall be provided where appropriate to protect lines from damage
34. Controls for all valve functions and electronic spreader control will be integrated into a single, self-contained ergonomically designed control center with padded armrest
35. A color coded, sealed, prewired harness shall be used with the modular designed control center
36. The electronic controller shall be fully proportional multi-stick controller to operate all cylinder functions
37. The controller shall be a 3-stick configuration with spreader controls located on armrest at operator's fingertips
38. Four auxiliary rocker switches with an fifth switch being power switch for spreader control shall be located between the joy sticks and sander controls
39. Stick controls shall have LED-backlit nomenclature for all joystick functions
40. Electronic spreader control shall have an open-loop application
41. The spreader operator interface shall include a Spreader rotary switch for selecting material application rates 0-10 on-the-fly, with a built-in pushbutton for Standby operation. There shall also be a Spinner rotary switch for selecting spinner speeds 0-10 and have a built-in pushbutton for Blast operation
42. Control center shall be a Force America 2100 Patrol Commander Ultra or approved equal
43. Control center shall be seat mounted

Plow Hitch:

1. Truck portion plow hitch shall be of the Falls 26B style to couple with existing plows
2. For added strength and reinforcement truck portion hitch shall have thrust arms and side plates
3. Lift cylinder shall be a minimum of a 3"x10" single acting cylinder
4. Truck portion hitch shall be installed to truck's front frame extension as close to truck hood and still allow proper hood function

Installation:

1. Installation shall meet superintendent approval
2. Hydraulic hoses shall be ran to front for plow lift (one way plow), rear for spreader, and right side for wing with Pioneer quick couplers

3. Hydraulic oil shall be filled to proper level after hydraulic system is tested
4. All wiring joints shall be protected with heat shrink

Plow:

1. Plow shall be a one way full trip style
2. Moldboard is to have a minimum intake height of 26" and discharge height of 57"
3. Moldboard shall be 12' in length
4. Moldboard shall be minimum 10 gauge roll formed steel with a tensile strength of 55,000 to 70,000 psi
5. Moldboard shall have a built-in integral shield
6. The landslide plate shall be a minimum 3/8" plate
7. There shall be a nose guard attached to the landslide plate
8. Discharge end of the moldboard shall be reinforced with 1/2" rib welded to the moldboard sheet
9. There shall be 5 one piece ribs welded to the moldboard
10. Moldboard top angle shall be minimum 2"x3"x3/8" angle iron
11. Moldboard bottom angle shall be 4"x4"x3/4" structural angle iron reinforced by 1/2"x3"x3" gussets on 12" centers
12. Moldboard horizontal bracing shall be 3"x3"x1/2" angle at each compression spring attachment point, at discharge end there shall be two 3"x3"x1/4" horizontal braces tying the last two ribs together for additional strength
13. Moldboard shall be 100% continuously welded
14. Cutting edge shall be 5/8"x8" AASHO top punched
15. Main push tube shall be 4"x4"x3/8" wall square tubing
16. The plow moldboard shall have an adjustable attack angle from 9 to 35 degrees
17. Trip mechanism for the plow shall be a dual compression trip spring assembly
18. The oscillating plate shall be 1"x5" bar stock with a 1-1/4" bolt attaching plow portion to hitch
19. Plow moldboard shall be powder coat orange and powder coat black pushframe
20. Plow to truck hitch shall matchup to a Falls 26B truck hitch
21. Plow moldboard shall have a rubber snow deflector installed
22. Plow shall be installed

Wing:

1. The wing shall be designed to mount behind Passenger side door with front post mounted ahead of pusher and rear post mounted between tandems
2. Height of the moldboard shall be 32" including 8" cutting edge
3. The length of the wing shall be 10'
4. The cutting edge shall be 5/8"x8" top punch with AASHO spacing
5. The moldboard shall be a roll formed boxed panel design using 10 gauge Domex steel with 100,000 psi tensile
6. The moldboard shall have a 4" return flange on top of the moldboard for extra strength
7. The base of the wing shall be a fabricated section from 1/2"x7" bar reinforced with 1/2"x2" bar and 1/2" gussets
8. The moldboard shall be reinforced by a double box section of 10 gauge domex extending from the wing base to the mid height point on the back of the wing moldboard
9. The inner box section shall be installed and 100% welded prior to installing the outer box section which also shall be 100% welded
10. There shall be 4 vertical ribs on the back of the wing moldboard

11. There shall be 2 horizontal support attaching brackets welded 100% to the back of the wing to provide a connection point for the wing pusharms
12. The toe of the moldboard shall be mounted to the front slide plate via a single 1-1/4" diameter grade #5 bolt with a top lock nut
13. The cross tube shall be mounted under the truck by passing through two 1/2" steel mounting plates with each plate having a single flame cut 4-1/4"x6-1/4" hole for the cross tube to fit through
14. The outboard end of the cross tube shall have a 3-3/4"x7" structural I-beam vertically attached so as to be the foundation of the front wing post assembly and will be reinforced with steel bar welded at a 45 degree angle from the cross tube to the I-beam
15. The outboard portion of the I-beam shall have two 3/4"x3/4" steel pieces welded to the outermost edges so as to provide a slide where-in a 28"x6"x3/4" slide plate shall be mounted
16. The front slide assembly will be actuated by a single stroke double-acting cylinder
17. The slide assembly will allow mounting of the moldboard by means of a reinforced flame-cut mounting plate which in turn is mounted to the slide assembly
18. Lifting action for the heel of the wing will be accomplished with a single, double acting 3"x10" hydraulic cylinder which is attached to the wing moldboard's mechanical float linkage
19. The wing shall be operated by hydraulic lift no cables or chains
20. The rear wing mount shall be designed to mount between the rear tandems with brackets designed to work with a Tuff Track suspension
21. There shall be a rear wing heavy duty adjustable spring cushioned lift arm including a safety shear pin
22. The moldboard shall be powder coat orange with hardware powder coat black
23. Wing shall be completely installed

Assist Axle:

1. The assist axle shall be located in the pusher position
2. Suspension and axle shall be rated at 20,000 pounds
3. Axle shall be non-steer type
4. Suspension shall be air ride and air lift
5. Application shall be for single wheel
6. Brookings County to provide wheels and 11R22.5 tires
7. Installer to provide documentation as to air supply required and supply the additional air volume as needed
8. Assist axle shall have in cab controls and exterior regulator
9. Installer to provide complete installation of unit

Pup Pull Plate:

1. Rear of chassis shall be designed to have a hitch to pull a pup trailer and work with a chip seal machine
2. Hitch shall be a two plate system with the chipper bar being permanent and the pintle hitch plate being removable
3. Both plates shall be 3/4" steel plate
4. Chipper bar shall have 2" shaft for chipper to attach to
5. Pintle shall be Wallace Forge 100,000 G.T.W with air cylinder or equal
6. Hitch shall have safety hook
7. All electric, hydraulic, and air shall be incorporated into the hitch
8. Brookings County to give final approval of design and layout

9. Hitch to be painted black

General:

1. All equipment bid shall be installed
2. All equipment bid shall new and of current make and model
3. Any standard equipment not identified in these specification shall still be included as part of the equipment specified
4. Any items not included in these specification, but are required or needed to make the equipment operational and functional shall be implied as part of this specification

Bid:

1. Price for Dump Body, Hoist, Hydraulics and Truck Portion Plow Hitch
2. Option Air Control Hydraulics With Force SSC-2100 Spreader Control In Lieu Of Electric.
Valves shall be Add-A-Stack with air spools enclosed in a valve enclosure. Air controls shall be configured with center lock dump hoist control with air diverter for pup hoist plumbed to work with dump controller. Dump and pup hoist control shall allow feathering of the box. A combination of single air controls stacked together for operation of the remaining sections in the valve bank. Air lines shall be ran into cab as not to ware, pinch, or puncher air lines. Air lines shall be sealed to prevent dirt and moisture from entering cab
3. Option Cable Control Hydraulics With Force SSC-2100 Spreader Control In Lieu Of Electric
Cable controls shall operate the Add-A-Stack valve enclosed in a valve enclosure and shall be a stainless steel cable core capable of 90 pounds push-pull (Morse cables or equal). Hoist section shall have center lock to prevent accidental actuation. A combination of single levers stacked together for operation of the remaining sections in the valve bank. Air shift diverter control shall be incorporated with dump body hoist control to operate pup hoist. Cables shall be sealed to prevent dirt and moisture from entering the cab. Order and placement of lever controls will be determined at time of installation.
4. Price For Snow Plow
5. Price For Wing
6. Price For Assist Axle
7. Price For Rear Hitch